What is claimed is:

1. A method for moving a carriage assembly from an initial position to a target position relative to a storage medium having a center and a circumference and rotating relative to said carriage assembly at a circumferential velocity about said center, comprising the steps of:

determining a first radial distance between said initial position of said carriage assembly and said center of said storage medium;

determining a second radial distance between said target position of said carriage assembly and said center of said storage medium;

determining a circumferential distance between said initial position of said carriage assembly and said target position of said carriage assembly taken parallel to said circumference of said storage medium;

determining an initial circumferential velocity of said storage medium about said center of said storage medium;

calculating a velocity trajectory relative to said first radial distance, said second radial distance, said

circumferential distance, and said initial circumferential velocity such that, if said carriage assembly is moved from said initial position to said target position with said velocity trajectory, said carriage assembly will arrive radially and circumferentially at said target position at substantially the same time; and

C2

moving said carriage assembly from said initial position to said target position substantially at said velocity trajectory.

2. A method as defined in claim 1, further comprising the steps of:

determining a target circumferential velocity of said storage medium about said center of said storage medium; and

applying a force to said storage medium to change from said initial circumferential velocity to said target circumferential velocity;

wherein said velocity trajectory is further relative to said desired circumferential velocity; and

wherein said carriage assembly will arrive radially and circumferentially at said target position at substantially

the same time if moved from said initial position to said target position substantially with said velocity trajectory, and if said initial circumferential velocity of said storage medium is changed to said target circumferential velocity.

3. A method as defined in claim 2, wherein said storage medium achieves said target circumferential velocity before said carriage assembly arrives at said target position.

4. A method as defined in claim 2, wherein said storage medium achieves said target circumferential velocity at substantially the same time as said carriage assembly arrives at said target position.

5. A method for moving a carriage assembly from an initial position to a target position relative to a storage medium having a center and a circumference and rotating relative to said carriage assembly at a circumferential velocity about said center, comprising the steps of:

moving said carriage assembly from said initial position radially toward said target position at a first velocity trajectory;

determining an intermediate position of said carriage assembly relative to said storage medium;

determining a first radial distance between said intermediate position of said carriage assembly and said center of said storage medium;

determining a second radial distance between said target position of said carriage assembly and said center of said storage medium;

determining a circumferential distance between said intermediate position of said carriage assembly and said target position of said carriage assembly taken parallel to said circumference of said storage medium;

determining an initial circumferential velocity of said storage medium about said center of said storage medium;

calculating a velocity trajectory relative to said first radial distance, said second radial distance, said circumferential distance, and said initial circumferential velocity such that, if said carriage assembly is moved from said intermediate position to said target position with said velocity trajectory, said carriage assembly will arrive radially and circumferentially at said target position at substantially the same time; and

moving said carriage assembly from said intermediate

position to said target position substantially at said velocity trajectory.

6. A method as defined in claim 5, further comprising the steps of:

determining a target circumferential velocity of said storage medium about said center of said storage medium; and

applying a force to said storage medium to change from said initial circumferential velocity to said target circumferential velocity;

wherein said velocity trajectory is further relative to said desired circumferential velocity; and

wherein said carriage assembly will arrive radially and circumferentially at said target position at substantially the same time if moved from said intermediate position to said target position substantially with said velocity trajectory, and if said initial circumferential velocity of said storage medium is changed to said target circumferential velocity.

7. A method as defined in claim 6, wherein said storage medium achieves said target circumferential velocity before said

carriage assembly arrives at said target position.

8. A method as defined in claim 6, wherein said storage medium achieves said target circumferential velocity at substantially the same time as said carriage assembly arrives at said target position.

9. A method for moving a carriage assembly from an initial position to a target position relative to a storage medium having a center and a circumference and rotating relative to said carriage assembly at a circumferential velocity about said center, comprising the steps of:

determining a radial distance between said initial position of said carriage assembly and said target position of said carriage assembly;

determining a circumferential distance between said initial position of said carriage assembly and said target position of said carriage assembly taken parallel to said circumference of said storage medium;

determining an initial circumferential velocity of said storage medium about said center of said storage medium;

calculating a velocity trajectory relative to said radial

distance, said circumferential distance, and said initial circumferential velocity such that, if said carriage assembly is moved from said initial position to said target position with said velocity trajectory, said carriage assembly will arrive radially and circumferentially at said target position at substantially the same time; and

moving said carriage assembly from said initial position to said target position substantially at said velocity trajectory.

10. A method as defined in claim 9, further comprising the steps of:

determining a target circumferential velocity of said storage medium about said center of said storage medium; and

applying a force to said storage medium to change from said initial circumferential velocity to said target circumferential velocity;

wherein said velocity trajectory is further relative to said desired circumferential velocity; and

wherein said carriage assembly will arrive radially and circumferentially at said target position at substantially

the same time if moved from said initial position to said target position substantially with said velocity trajectory, and if said initial circumferential velocity of said storage medium is changed to said target circumferential velocity.

11. A method as defined in claim 10, wherein said storage medium achieves said target circumferential velocity before said carriage assembly arrives at said target position.

12. A method as defined in claim 10, wherein said storage medium achieves said target circumferential velocity at substantially the same time as said carriage assembly arrives at said target position.

13. A method for moving a carriage assembly from an initial position to a target position relative to a storage medium having a center and a circumference and rotating relative to said carriage assembly at a circumferential velocity about said center, comprising the steps of:

moving said carriage assembly from said initial position radially toward said target position at a first velocity trajectory;

determining an intermediate position of said carriage assembly relative to said storage medium;


determining a radial distance between said intermediate position of said carriage assembly and said target position of said carriage assembly;

determining a circumferential distance between said intermediate position of said carriage assembly and said target position of said carriage assembly taken parallel to said circumference of said storage medium;

determining an initial circumferential velocity of said storage medium about said center of said storage medium;

calculating a velocity trajectory relative to said radial distance, said circumferential distance, and said initial circumferential velocity such that, if said carriage assembly is moved from said intermediate position to said target position with said velocity trajectory, said carriage assembly will arrive radially and circumferentially at said target position at substantially the same time; and

moving said carriage assembly from said intermediate position to said target position substantially at said velocity trajectory.

14. A method as defined in claim 13, further comprising the steps of:

determining a target circumferential velocity of said storage medium about said center of said storage medium; and

applying a force to said storage medium to change from said initial circumferential velocity to said target circumferential velocity;

wherein said velocity trajectory is further relative to said desired circumferential velocity; and

wherein said carriage assembly will arrive radially and circumferentially at said target position at substantially the same time if moved from said intermediate position to said target position substantially with said velocity trajectory, and if said initial circumferential velocity of said storage medium is changed to said target circumferential velocity.

15. A method as defined in claim 14, wherein said storage medium achieves said target circumferential velocity before said carriage assembly arrives at said target position.

16. A method as defined in claim 14, wherein said storage medium achieves said target circumferential velocity at substantially the same time as said carriage assembly arrives at said target position.

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